

WHAT IS CLAIMED IS:

1. A wiring device for use in a folding portable device including an upper unit, a lower unit and a hinge unit mechanically connecting said upper unit to said lower unit, said hinge unit having a rotating axis for rotating said upper unit in relation to said lower unit and a folding/unfolding axis perpendicular to the rotating axis for folding/unfolding said upper unit in relation to said lower unit, said wiring device comprising:

a rotative direction wound portion having a first central axis corresponding to the rotating axis for being wound with a first part of a flexible printed cable which electrically connects said upper unit to said lower unit; and

a folding/unfolding direction wound portion having a second central axis corresponding to the folding/unfolding axis for being wound with a second part of said flexible printed cable.

2. A wiring device as claimed in Claim 1, wherein said rotative direction wound portion has a pair of winding guides for guiding said first part of said flexible printed cable; and wherein

said folding/unfolding direction wound portion has another pair of winding guides for guiding said second part of said flexible printed cable.

3. A wiring device as claimed in Claim 1, wherein said hinge unit has a folding/unfolding shaft with a thinner part thinner than the other part thereof to be used for said folding/unfolding direction wound portion.

4. A wiring device as claimed in Claim 1, further comprising a cable fixing portion for fixing said flexible

printed cable to said hinge unit.

5. A wiring device as claimed in Claim 4, wherein said cable fixing portion comprises:

a holding member for holding a third part of said flexible printed cable; and

a fixing member for fixing said holding member to said hinge unit.

6. A wiring device as claimed in Claim 5, wherein said holding member keeps said third part of said flexible printed cable from coming in contact with a moving part of said hinge unit.

7. A wiring device for use in a folding portable device including an upper unit, a lower unit and a hinge unit mechanically connecting said upper unit to said lower unit, said hinge unit having a rotating axis for rotating said upper unit in relation to said lower unit and a folding/unfolding axis perpendicular to the rotating axis for folding/unfolding said upper unit in relation to said lower unit, said wiring device comprising:

a rotative direction wound portion having a first central axis corresponding to the rotating axis for being wound with a first part of a flexible printed cable which electrically connects said upper unit to said lower unit;

a folding/unfolding direction wound portion having a second central axis corresponding to the folding/unfolding axis for being wound with a second part of said flexible printed cable; and

a cable fixing portion for fixing a third part between said first part and said second part of said flexible printed

cable.

8. A wiring device as claimed in Claim 7, wherein said hinge portion comprises a folding/unfolding shaft having a pair of end portions; and wherein

said folding/unfolding direction wound portion is provided at each of said end portions of said folding/unfolding shaft.

9. A wiring device as claimed in Claim 8, further comprising said flexible printed cable, wherein

said second portion of said flexible printed cable is wound around said folding/unfolding direction wound portion at either of said end portions of said folding/unfolding shaft.

10. A wiring device as claimed in Claim 9, wherein said flexible printed cable has a spread shape so that said first part thereof is wound around said rotative direction wound portion, and that said second part thereof is wound around said folding/unfolding direction wound portion, and that said third part is extended from said rotative wound portion to said folding/unfolding direction wound portion through said cable fixing portion.

11. A wiring device as claimed in Claim 8, further comprising said flexible printed cable having a fourth part continuing from said third part thereof, wherein

said second part of said flexible printed cable is wound around said folding/unfolding direction wound portion at one of said end portions of said folding/unfolding shaft while said fourth part of said flexible printed cable is wound around said folding/unfolding direction wound portion at the other of said

end portions of said folding/unfolding shaft.

12. A wiring device as claimed in Claim 7, wherein said cable fixing portion comprises:

a holding member for holding said third part of said flexible printed cable; and

a fixing member for fixing said holding member to said hinge unit.

13. A wiring device as claimed in Claim 12, wherein said cable holding portion has a T shape, and wherein

said fixing member fixes said holding member to said hinge unit so that a horizontal bar of the T shape corresponds to the folding/unfolding axis and that a vertical bar of the T shape corresponds to the rotating axis.

14. A wiring device as claimed in Claim 7, wherein said rotative direction wound portion has a pair of winding guides for guiding said first part of said flexible printed cable; and

said folding/unfolding axis winding portion has another pair of winding guides for guiding said second part of said flexible printed cable.

15. A wiring device as claimed in Claim 7, wherein said hinge unit has a folding/unfolding shaft with a central axis corresponding to the folding/unfolding axis, said folding/unfolding shaft having a thinner part thinner than the other part thereof to be used for said folding/unfolding direction wound portion.

16. A wiring method for wiring a flexible printed cable between an upper unit and a lower unit of a folding portable device, said upper unit and said lower unit mechanically

connected to each other by a hinge unit having a rotating axis for rotating said upper unit in relation to said lower unit and a folding/unfolding axis perpendicular to the rotating axis for folding/unfolding said upper unit in relation to said lower unit, comprising the steps of:

fixing a predetermined part of said flexible printed cable to said hinge unit;

winding a first winding part of said flexible printed cable around a rotative direction wound portion having a first central axis corresponding to the rotating axis; and

winding a second winding part of said flexible printed cable around a folding/unfolding direction wound portion having a second central axis corresponding to the folding/unfolding axis.

17. A folding portable device including an upper unit, a lower unit and a hinge unit for mechanically connecting said upper unit to said lower unit, said hinge unit having a rotating axis for rotating said upper unit in relation to said lower unit and a folding/unfolding axis perpendicular to the rotating axis for folding/unfolding said upper unit in relation to said lower unit, said folding portable device comprising:

a flexible printed cable for electrically connecting said upper unit to said lower unit;

a rotative direction wound portion having a first central axis corresponding to the rotating axis for being wound with a first part of said flexible printed cable around the rotating axis; and

a folding/unfolding direction wound portion having a

second central axis corresponding to the folding/unfolding axis for being wound with a second part of said flexible printed cable around the folding/unfolding axis.

18. A wiring device as claimed in Claim 17, wherein said rotative direction wound portion has a pair of winding guides for guiding said first part of said flexible printed cable; and said folding/unfolding direction wound portion has another pair of winding guides for guiding said second part of said flexible printed cable.

19. A wiring device as claimed in Claim 17, wherein said hinge unit has a folding/unfolding shaft with a thinner part thinner than the other part thereof to be used for said folding/unfolding axis winding portion.

20. A wiring device as claimed in Claim 17, further comprising a cable fixing portion for fixing said flexible printed cable to said hinge unit.

21. A wiring device as claimed in Claim 20, wherein said cable fixing portion comprises:

a holding member for holding a third part of said flexible printed cable; and

a fixing member for fixing said holding member to said hinge unit.

22. A wiring device as claimed in Claim 21, wherein said holding member keeps said third part of said flexible printed cable from coming in contact with a moving part of said hinge unit.